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An Account of a Book.

De CORPORE ANIMATO Libri quatuor, seu promota per Experimenta Philosophia SPECIMEN ALTERUM; Auth. Johanne Baptista Du Hamel P. S. L. Parisiis, 1673. in 12°.

THis learned Author having formerly published a Treatise of the *Affections of Bodies*, (described in *Numb. 65.* of these Papers,) and therein explained their Qualities, both sensible and others, and such as belong to Bodies in general, and things Inanimate; He thought fit in this piece to give us another Specimen of the Experimental Advancement of Physiology, by treating of that noble subject of *Bodies Animate*; which he doth very learnedly, and modestly, in four Books:

In the *first*, he treats *first* of the Nature and powers of the Sensitive Soul; seeming to incline to the opinion of those excellent men, *Gassendus, Fabri* and *Willis*, who esteem the Souls of Brutes to be either Fire, or something having affinity or analogy with it. *Then*, of Sense, what it is that causeth Sensation; what the Objects transmit into the Sensories; what are chiefly the differences of the Internal senses; what the Imagination; what the *Ingenium* or Witt; whence so great a power of the Memory; from what causes so many and so great differences of Wits; what produces the Appetite and the Affections of the Soul; and many other important subjects belonging to this Head. In which Dissertation he expresses his great wonder at those, that deny *Perception* and *Sense* to Brutes, which he thinks to be as manifest in them, as that they have Organs fitted for it. In the same, he thinks it somewhat incredible, that those Qualities, we call *Sensible*, should have their being and denomination altogether from the apprehension of the Senses; so that, if there were no seeing Eye, there would be no Colour; if there were no hearing Ear, there would be no Sound; if there were no feeling Hand, there would be no Heat, &c. He there also discourses largely and ingeniously of the Causes of the variety of Wits, and what kind of force and faculty is most fit for this or that Art, Science, and Profession; what will make an Orator, a Poet, a Musitian, a Painter, a Physician, a Lawyer, a Divine, a Statesman, &c. When he inquireth into the nature and force of the *Memory*, he taketh pains in assigning not only the cause of its tenacity, lubricity, promptitude of furnishing for delivery; but also the rooms and galleries, to receive and lodge such an infinit variety of movements and phantasms, as occur and present themselves to animals. Where something is annex relating to *Artificial Memory*. Explicating the nature of the *Affections* and the manner of moving them, he takes notice of that admirable quickness and celerity, with which the impressions are made and transmitted from the Objects through the Sensories to the Fancy; expressing there a species of convenience or inconvenience, and so moving the

the Appetit accordingly by the animal spirits, determin'd by the Fancy to pass into such nerves rather than into others, &c.

In the *second* part he treats of the Organs and Operations of the *External Senses* in particular ; where he descends to various and very curious Observations and Experiments, which do considerably elucidate that subject. Discourſing of the ſenſe of *Touch*, he takes notice of the curious texture of the Skin, being found for the moſt part nothing but a woof of capillary nerves, arteries and veins, and receiving into it the ends of the excretory veſſels ariſing from an infinit number of little glanduls, through which veſſels the ſweat and ſteam do iſſue. Here alſo upon occaſion he ingeniouſly aſſigns the cauſe of the Blackneſs of *Negros* ; as alſo of that ſharpeſs of ſweat, that ſometimes corrodes and maketh friable mens ſhirts ; of Rheumatismes ; of Gouts ; of the Laſſitude and heavineſs in thick and rainy weather, &c ; ſuggeſting withall, ſeveral Remedies in ſuch and other caſes. When he treats of the *Taſt*, he well conſiders the ſtructure of the Tongue, and the nature of the Spittle, and the great number of the nervous *papillæ* or little teats in it ; and eſteems, that the cauſe, which ſo quickly reviveth faint and ſometimes dying perſons, is, that ſome of the ſubtile and moſt penetrating parts of liquors adminiſtered do enter into the ſaid nervous *papillæ*, and from thence paſs, in a moment, into the nerves themſelves of the body, and ſo give new motion and reſreſhment.

Where he alſo renders the cauſe of the *pica* or unnatural appetit in young women, and others.

When he giveth an account of the ſenſe of *Smelling*, he takes notice, with *Dr. Willis*, of the great affinity there is between that ſenſe and the Sight and Taſte, and of the ground thereof ; as alſo of the reaſon, why ſome Brutes excell men and other animals in Smelling ; and why men or brutes that are flat noſ'd, have a dulneſs in this Senſe, &c. Deſcribing the Senſe of *Hearing*, he commends the Loud ſpeaking Trumpet, lately produced in *London* by *Sir Sam. Moreland* ; adding, that the ſame may alſo be conveniently effected by a large and oblong Cone ; and mentioning withall *M. Mariotte's* contrivance of an inſtrument of a *Parabolical* figure, of very great advantage to a dull Hearing. Treating of the ſenſe of *Seeing*, he explains at large and with much clearneſs the Fabrick of the Eye, and the whole matter of *Vision*, and much of what is material in Opticks and Dioptricks ; not forgetting what hath lately paſſed between *M. Mariotte* and *M. Pecquet*, (two conſiderable Members of the *Royal Academy* at *Paris*,) concerning the proper *Organ* of *Vision*, which the former of them maketh to be rather the membrane

Choroides than the *Retina* * ; wherein our Author ſeems to agree with *M. Mariotte*. Nor doth he paſs by the Queſtion, why Animals with two Eyes, and Flies and other Inſects with many Eyes, do not ſee one Object double or manifold ? He inquires alſo, how the Diſtances, Magnitudes,

* See Numb. 55. and 57. of theſe Tracts, where the Controverſy is diſcuſſed at large.

nitudes, Figures and Motions of Objects are perceived and estimate by the sight ? He delivers likewise the doctrine of Reflexe and Refracted Vision, and that of Telescopes and Microscopes, with more plainness, than many others have done, &c.

In the *third* Book, he explicates what belongs to the Organs and Functions of the *Internal* Senses. Where he discusseth that so much controverted and difficult point about the knowledge of Brutes, and labors to assign the Difference that is betwixt the knowledge of Man and that of other Animals. Then he examines the Structure and Use of the Brain, (referring in many things to Dr. Willis's Book on that Argument) and treateth of the *Organs* of the Inward Senses ; discussing withall that ingenious opinion of Dr. Willis, importing, that the Species's of objects are impress'd in the *cortex* of the Brain, whence the Spirits reflected, cause Reminiscence ; as the Spirits fluctuating in the *corpus callosum* produce the act of Imagination ; and passing through the *medulla* into the nerves, excite the Appetite, or the instinct to spontaneous motion, whilst the Spirits proceeding from the *cerebellum* produce all motion involuntary. Next, he discourses of *Sleep*, and *Waking* ; where he takes notice of those Animals that sleep all the winter long ; as also of Night-walkers ; likewise of that opinion of Dr. Willis's, that Sleep and the Memory have one and the same seat, &c. To all which he subjoineth a discourse of some other Affections of the Brain, as Giddiness, Raving, Phrensy, Melancholy and the like ; of all which he acknowledges the said Dr. Willis to have written with great learning and solidity.

In the *fourth* and last Book he delivers the Doctrine of the *Motion* of *Animals* and the Organs thereof. And here he *first* treats of the nature and origin of the Nerves, and observes the difference that is between the *Brain* and the *After-brain*, relating an Experiment made in the *Royal Academy*, by which it appear'd, that the *Brain* being cut in a live animal, the Motion of the Heart and the Respiration ceased not ; but all ceased, as soon as the knife touched the *Cerebellum* or *After-brain*. Where he again takes notice of Dr. Willis's system, and very candidly professeth, that he knows not, whether any thing in our Age have been invented more ingenious and useful, for explaining clearly the Oeconomy of the whole Animal, and its Functions, both sound and disorder'd. Then, he enumerates all the *Conjunctions* of the Nerves ; and here, amongst many other things, he observes the cause, why, in all the Perturbations of the Soul, the Eyes, the Face and the Mouth it self, do so exactly answer the Affections of the Heart, as if they were all struck with the same *plestrum* or quill ; as he also remarketh with Dr. Willis, that the Engin in Brutes is of a slighter contrivance than in Man, forasmuch as in *those* the Heart receives no nerves from the *Intercostal* ; whence there is not in *them* that Consent between the Heart and the Brain, that there is in Man. Further, he treats of the *Muscles*, as the chief Instrument of *Spontaneous* motion,

motion, explaining the manner how it is perform'd, and endeavouring to solve the difficulties occurring therein: where he examines, both what *Des-Cartes* hath devised on this subject by assigning a direction to the wagging *Glandula pinealis*; and what *Gassendus* and Dr. *Willis* have suggested on the same, by the flameous motion or explosion of the Spirits; the former seeming to him altogether fictitious (how ingenious soever;) the latter leaving it hardly conceivable to him, how so constant and even a motion of the Muscles in a sound body can proceed from so violent a cause; nor how the Soul would be able to keep such a command over her motions, if they did depend from an Accension of the Spirits or a violent Explosion. Mean time, he finds it very difficult to make it out, what it is indeed, that causeth the Motion of the Muscles; yet conceives at last, that 'tis the Contraction of their fibres, that produces it; but whether that be done by the accession of some substance, or by a change of angles in the fibres, is a new difficulty, which the Learned *Steno* scruples to determine any thing in, though Dr. *Willis* declare for the former opinion. After this, he enumerates many things, that remain yet unknown to us in the Motion of the Muscles. Which done, he concludes the whole with his ingenious Considerations about the Motion of Walking, Flying, Swimming, Creeping. &c; annexing thereto his doctrine of Passions.

E R R A T A in this Numb. 98.

Pag. 6141. l. 20. r. *evidentiū*. . p. 6146. l. penult. r. *plausu*. l. bid. r. *Augusto mense*.

L O N D O N,

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